



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,501	12/29/2000	Kireeti Kompella	Juniper-4 (JNP-0026)	9488
26479	7590	06/16/2006	EXAMINER	
STRAUB & POKOTYLO 620 TINTON AVENUE BLDG. B, 2ND FLOOR TINTON FALLS, NJ 07724			JONES, PRENELL P	
			ART UNIT	PAPER NUMBER
			2616	

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/752,501

Applicant(s)

KOMPELLA, KIREETI

Examiner

Prenell P. Jones

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2,3,5,6,8-41,53-55,57,60,61,63,70-72 and 79-84 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18,19,29-33,36,40,41,54,55,60,61 and 71 is/are allowed.
- 6) ☒ Claim(s) 2,3,5,6,8-28,34,35,37-39,53,57,63,70,72 and 79-84 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

***Response to Arguments***

1. Applicant's arguments with respect to claims 2,3,5-41,53-55,57,60,61,63,70,71 and 79-84 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues that the cited art of Cao, et al, Stacey et al and Byrnes alone or combined discloses with respect to amended claims "determination constraints expressed in the form of a program including one or more executable instructions."

Examiner agrees, therefore, an additional search was preformed.

***Claim Rejections - 35 USC § 101***

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 20-28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Regarding claim 20-28, the preferred descriptive material is not recited as recorded on "computer readable medium." See "interim guidelines."

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2616

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2, 3, 5, 6, 8-17, 20-28, 37-39, 63, 70, 72 and 79-84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cao et al (US Pat 6,721,269) in view of Bertin et al (US Pat. 5,600,638).

Regarding claims 2, 3, 5, 6, 8-17, 20-28, 37-39, 63, 70, 72 and 79-84, Cao discloses (Abstract, Fig. 1, col. 5, line 10 thru col. 7, line 67, a communication system that employs explicit routing protocols between a plurality of LSR (label switched router), explicit routing is a subset of constraint-based routing, whereby explicit route is represented in a label-request message as a list or group of nodes, node selected from group of nodes, constraint-based route is encoded as a series of ER-hops, each node along the path attempts to determine a loop-free path (partial path), (col. 6, line 4 thru col. 7, line 67) "next" router attempt to fulfill constraints if selected node fails, nodes/LSR determines if it is adjacent to abstract node, if a node is not part of the abstract node, label request message completes evaluation and routes/forwards messages containing constraints to next hop/node/router (col. 8, line 4-67, a node to which constraint process is delegated and routed to next node via forwarding maps) described by a first ER-hop an error message is returned indicating "Bad initial ER-hop and Bad explicit routing TLV" error, router establish a plurality of partially distinct paths,

Art Unit: 2616

ER-hops are loose hops, if next node is a strict ER-hop, then there is an error and it is represented by a "Bad strict node" error, (col. 8, line 20 thru col. 10, line 41) path parameters include peak rate, committed rate, service granularity, peak rate defines bandwidth, delay variations, area border/boundary router gateway, communication of "downstream lost" status message and "upstream lost" status message in detection of broken path. However, Cao is silent on autonomous system and message including a path determination constraint expressed as an executable instruction. In analogous art, Bertin discloses a communication system for improving processing time with respect to selecting a path in a switching network wherein path constraints are utilized in path determination and control messages exchanged between users/nodes in a network, whereby calculations are performed via processes associated with algorithms/code and routines (plurality of executable instructions) which are executed (Abstract, Fig. 5-9, col. 10, line 25-34, col. 12, line 10 thru 13, line 30, col. 14, line 5-25, col. 16, line 15-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to be motivated to implement the teachings of Bertin, who teach executing algorithms/routines/instructions with respect to constraints associated in a control message with the teachings of Cao for the purpose of further managing, controlling and operating the communication among nodes in a LSR environment as to reduce congestion.

Regarding claims 20-28, as indicated above, Cao discloses (Abstract, Fig. 1, col. 5, line 10 thru col. 7, line 67, a communication system that employs explicit routing protocols

Art Unit: 2616

between a plurality of LSR (label switched router), explicit routing is a subset of constraint-based routing, whereby explicit route is represented in a label-request message as a list or group of nodes, node selected from group of nodes, constraint-based route is encoded as a series of ER-hops, each node along the path attempts to determine a loop-free path (partial path), (col. 6, line 4 thru col. 7, line 67) "next" router attempt to fulfill constraints if selected node fails, nodes/LSR determines if it is adjacent to abstract node, if a node is not part of the abstract node (a node to which constraint process is delegated) described by a first ER-hop an error message is returned indicating "Bad initial ER-hop and Bad explicit routing TLV" error, router establish a plurality of partially distinct paths, ER-hops are loose hops, if next node is a strict ER-hop, then there is an error and it is represented by a "Bad strict node" error, (col. 8, line 20 thru col. 10, line 41) path parameters include peak rate, committed rate, service granularity, peak rate defines bandwidth, delay variations, area border/boundary router gateway, communication of "downstream lost" status message and "upstream lost" status message in detection of broken path. Cao further discloses (col. 11, line 15-40) that the methods achieved can be implemented using appropriate processor instructions used in combination with software and hardware logic.

2. Claims 34, 35 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chernoff et al (US Pat 6,000,028) in view of Bertin et al (US Pat. 5,600,638).

Art Unit: 2616

Regarding claims 34, 35 and 57, in a communication system that implements path determination via condition codes, Chernoff discloses communication between communication devices whereby condition codes (executable instructions) are utilized in a communication architecture that includes multiple registers used for storage of codes/instructions, (col. 16, line 40-65, col. 25, line 55-59), path determination as associated with executable code/instructions, pointers establishing connections between registers and plurality operands (first, second and third operand) (col. 63, line 1-18, col. 64, line 15-46), general purpose register reads and/or writes (Fig. 13, col. 20, line 37, col. 65, line 30-47), optimization execution depending on constraints (col. 60, line 50-62), second operand pointer points to parameter register, read only register (state container/parameter register) is utilized (col. 64, 16-45, col. 67, 6-10), server process via a path to determine from the server process whether there is a image corresponding to the routine of the application program wherein an execution has just been requested by a user (col. 9, line 61-65). Chernoff is silent on executable instructions received in a message from another node. In another communication system that utilize constraints in processing path determination, Bertin discloses a communication system for improving processing time with respect to selecting a path in a switching network wherein path constraints are utilized in path determination and control messages exchanged between users/nodes in a network, whereby calculations are performed via processes associated with algorithms/code and routines (instructions) which are executed (Abstract, Fig. 5-9, col. 10, line 25-34, col. 12, line 10 thru 13, line 30, col. 14, line 5-25, col. 16, line 15-67). Therefore, it would have been obvious to one

Art Unit: 2616

of ordinary skill in the art at the time of the invention to be motivated to implement with the teachings of Bertin, who teach executing algorithms/routines/instructions with respect to constraints associated in a control message with the teachings of Chernoff for the purpose of further managing, controlling and operating the communication among nodes as to reduce congestion. ,

3. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chernoff et al (US Pat. 6,000,028) and Bertin et al (US Pat. 5,600,638) in view of Cao et al (US Pat. 6,721,269).

Regarding claim 31 and 32, as indicated above, Chernoff and Bertin disclose determining path in a communication system that utilizes constraint instruction as associated with control messaging. Both Chernoff and Bertin are silent on explicit node. However, in a communication system that performs path determination Cao discloses (Abstract, Fig. 1, col. 5, line 10 thru col. 7; line 67, a communication system that employs explicit routing protocols between a plurality of LSR (label switched router), explicit routing is a subset of constraint-based routing, whereby explicit route is represented in a label-request message as a list or group of nodes, node selected from group of nodes, constraint-based route is encoded as a series of ER-hops which are loose hops, strict ER-hop, representation by a "Bad strict node." Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to be motivated to implement utilizing either a loose-hop node or strict-hop node as taught by

Art Unit: 2616

Cao with the combined teachings of Chernoff and Bertin for the purpose of further establishing a path for traffic.

***Allowable Subject Matter***

1. Claims 18, 19, 29-33, 36, 40, 41, 54, 55, 60 and 61 are allowed over prior art.
2. The following is a statement of reasons for the indication of allowable subject matter: Although the prior art discloses a communication system path determination by utilizing system constraints, they fail to teach or suggest with respect to claim 18, determine whether the node is a tail-end, head-end or intermediate node, if it is determined that the node is a tail-end node, and at least one network path determination constraint has been satisfied, then signaling back to an upstream node of that path that the path is O.K., determining whether a strict-hop node is specified as a next node of an explicit path constraint, a loose-hop node is specified as a next node of an explicit path constraint or no node is specified as an explicit path constraint, if a strict-hop node is specified as a next node of an explicit path constraint, then applying each of the at least one network path determination constraint to an appropriate one of a link between the node and the strict-hop node, and the partial path defined, with respect to claim 29, executable instructions include a first operand pointer, second operand pointer and operation code whereby at least one pointer points to one attribute wherein the executable instruction was received in a message from another node, with respect to claim 36, if the tail-end node of the path is in a part of the network, the topology of which is not known by the node, then performing a constraint-based path

Art Unit: 2616

determination to a next node selected from a group of nodes consisting of an area border node, an autonomous system gateway node to generate a partial path and forwarding the message carrying the at least one network path determination constraint to an adjacent downstream node on the partial path, with respect to claim 40, a traffic engineering database generated by the processing for generating wherein the path determination facility is further adapted to determine at least a part of a path based on contents of the traffic engineering database, at least one path constraint received from signaling facility, wherein the path determination facility cannot determine a complete constraint-based path to a specified tail-end node, then the path determination facility performs a constraint-based path determination to a next node selected from a group of nodes, with respect to claim 54, forwarding the message carrying the at least one network path determination constraint to an adjacent downstream node on the partial path, wherein the node is an intermediate node and wherein the act of performing a constraint-based path determination includes determining whether a link from the node to the next node specified in the first portion of the path satisfies the set of at least one constraint, with respect to claim 60, second entry representing an accumulated value for a second attribute of a node or link connected to a node, and a third entry storing a result of a specified operation performed on one of the first entry and second entry.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prenell P. Jones whose telephone number is 571-272-3180. The examiner can normally be reached on 9:00-5:30.

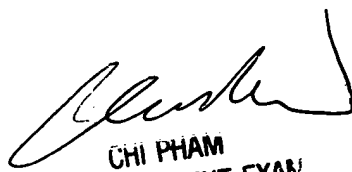
Art Unit: 2616

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Prenell P. Jones

June 7, 2006

  
CHI PHAM  
SUPERVISORY PATENT EXAM  
6/9/06